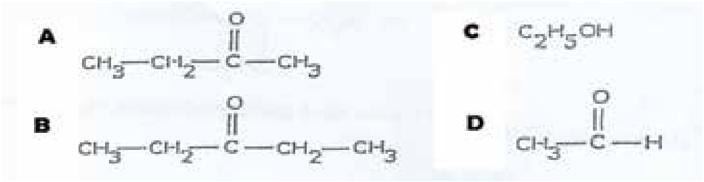
15. $2(C_6H_{10}O_5)_n + nH_2O$ -----------> $nC_{12}H_{22}O_{11}$ Which enzyme is required for the conversion of starch to maltose?

Starch Yeast Maltose

- A: Invertase
- B: Diastase
- C: Maltase
- D: Zymase

16. Iodoform test will not be positive with which of the following?



- A: A
- B: B
- C: C
- D: D

17. Which of the following is not a physical property of lower alcohols?

- A: Coloured
- B: Toxic
- C: Sweet smell
- D: Burning taste

18. Ethers are isomeric with which of the following?

- A: Ketones
- B: Acids
- C: Alcohols
- D: Aldehydes

19. IUPAC name of this Alcohol is?

CH_3-CH_2-CH-OH CH_3

- A: pri-Butyl alcohol
- B: sec-Butyl alcohol
- C: 1-Butanol
- D: 2-Butanol

20. Which of the following alcohol is converted to aldehyde with same number of carbon atoms in the presence of $K_2Cr_2O_7/H_2SO_4$?

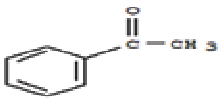
- A: $CH_2C(CH)_2OH$
- B: $CH_3CH_2CH_2OH$
- C: $(CH_3)_3COH$
- D: $(CH_3)_2CHOH$

Test 3

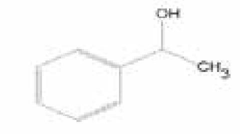
1. **Alcohols react with con.H_2SO_4 at 180°C to give which of the following?**

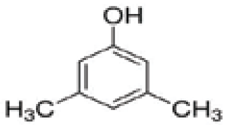
- A: Ethane
- B: Ethylene
- C: Ether
- D: Diethyl ether

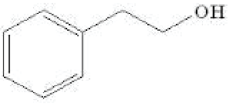
2. **What is the structure of alcohol which on oxidation with acidified $Na_2Cr_2O_7$ gives**

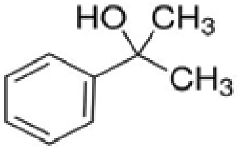


?

- A: 

- B: 

- C: 

- D: 

3. **Ethanol and hydrogen chloride react to give ethyl chloride in the presence of which catalyst?**

- A: $ZnCl_2$
- B: Pyridine
- C: ThO_2
- D: $K_2Cr_2O_7$

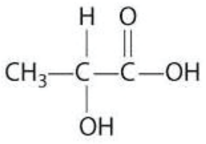
4. **$2C_2H_5OH + 2Na$ ----------> $2C_2H_5ONa + H_2$ which alcohol bond is broken in this reaction?**

- A: C-O bond
- B: C-H bond
- C: O-H bond
- D: None of the above.

5. **Which of the following is true about the solubility of alcohols in water?**

- A: It remains constant from lower to higher alcohols
- B: It increases from lower to higher alcohols
- C: It decreases from lower to higher alcohols
- D: First increase then decrease from lower to higher alcohols

6. Which of the following is the common name of

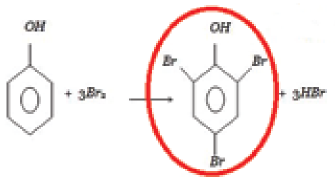


- A: Tartaric acid
- B: Lactic acid
- C: Picric acid
- D: Propionic acid

7. Reacting alkyl halides with dry Ag_2O gives?

- A: Alcohols
- B: Phenol
- C: Picric acid
- D: Ethers

8. The reaction shows the halogenation of phenol. What is the name of the marked compound?



- A: 2,4,6 – Tribromophenol
- B: 1,2,3 - Tribromophenol
- C: 2,4,6 – Hexabromophenol
- D: 1,2,3 – Tetrabromophenol

9. Primary,secondary and tertiary alcohols can be distinguish and identified by which test?

- A: Ninhydrin test
- B: Tollens test
- C: Idoform test
- D: Lucas test

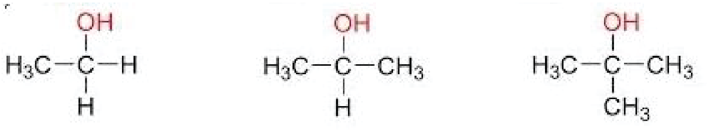
10. During Lucas test, what would you expect if the testing alcohol is 2-Propanol?

- A: It forms an oily layer immediately.
- B: It forms an oily layer in five to ten minutes.
- C: It forms an oily layer only on heating.
- D: It never forms an oily layer.

11. **Which of the following is true regarding the IUPAC naming convention of unsaturated alcohols?**

- A: Unsaturated alcohols cannot be named under IUPAC nomenclature.
- B: The number given to (-OH) groups or the point of unsaturation does not matter in IUPAC naming of alcohols.
- C: They are named in such a way that (-OH) groups get higher number than the point of unsaturation.
- D: They are named in such a way that (-OH) groups get lower number than the point of unsaturation.

12. **Which of the following is not a polyhydric alcohols?**



A **B** **C**

- A: A
- B: B
- C: C
- D: None of them are polyhydric alcohols.

13. **Sodium salt of benzene sulphonic acid reacts with NaOH to give?**

- A: Benzene
- B: Benzoic acid
- C: Phenol
- D: Sodium phenoxide

CH_3

\

14. **CH-OH : common name of this organic compound is?**

/

CH_3

- A: 2-Methyl Ethanol
- B: Isopropyl alcohol
- C: Propanol
- D: 2-Propanol

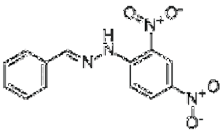
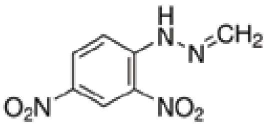
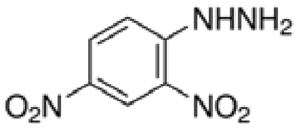
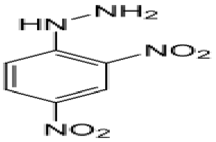
15. What is the order of reactivity of alcohols when the C-O bond breaks?

- A: Primary alcohol > Seconday alcohol > Tertiay alcohol
- B: Primary alcohol > Tertiay alcohol > Seconday alcohol
- C: Tertiay alcohol > Primary alcohol > Seconday alcohol
- D: Tertiay alcohol > Seconday alcohol > Primary alcohol

16. Which of the following alcohols have the lowest reactivity when O-H bond breaks?

- A: Tertiary alcohols
- B: Secondary alcohols
- C: Primary alcohols
- D: CH_3OH

17. The structural formula of the product of reaction of acetone with 2,4 dinitro phenyl hydrazine is?

- A: 
- B: 
- C: 
- D: 

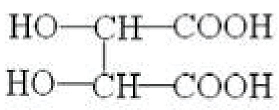
18. Which of the following is not the essential condition for the fermentation of ethanol?

- A: Aeration
- B: Dilution of solution
- C: Addition of nitrates
- D: Absence of any preservative

19. Which of the following is not obtained through the fermentation of starch?

- A: Glucose
- B: Fructose
- C: Maltose
- D: Ethanol

20. Which of the following is the common name of the given alcohol?



- A: Picric acid
- B: Lactic acid
- C: Tartaric acid
- D: Dipropionic acid

Test 4

1. What would you expect in Lucas test if the testing substance is methanol?

- A: It forms oily layer immediately.
- B: It forms oily layer in 5-10 minutes.
- C: It forms oily layer only on heating.
- D: It never forms an oily layer.

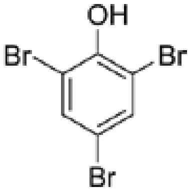
2. Methanol reacts with iodine in the presence of base to give which colour precipitate?

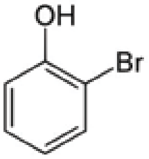
- A: Brick red ppt
- B: Yellow ppt
- C: Pink ppt
- D: No ppt

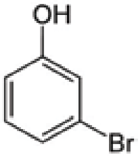
3. Acidic nature of phenol is due to?

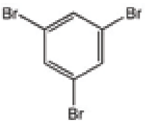
- A: Resonance stabilization of phenoxide ion.
- B: Hydrogen bonding.
- C: Phenolic group.
- D: Benzene ring.

4. Aqueous phenol decolorizes bromine water to form a white precipitate.What is the structure of white precipitate formed?

- A: 

- B: 

- C: 

- D: 

5. Ethanol can be distinguish from methanol by which test?

- A: Tollen's test
- B: Lucas test
- C: Ninhydrin test
- D: Iodoform test

6. Which one of the following is also called silver mirror test?

- A: Fehling's Solution Test
- B: Idoform test
- C: Tollens test
- D: Benedicts Test

7. The dehydration of ethyl alcohol with concenterated H_2SO_4 at 140 ºC gives:

- A: Diethyl ether
- B: Alcohol
- C: Ethene
- D: Carboxylic acid

8. Which of the following alcohol can be made by the distillation of the wood?

- A: Methanol
- B: Ethanol
- C: 1-propanol
- D: 2-Butanol

9. The I.U.P.A.C. names of alcohols end with suffix?

- A: -al
- B: -oxy
- C: -ol
- D: -oic

10. 2-Methyl-2-Propanol on oxidation in the presence of acid dichromate gives which of the following?

- A: 2-Methyl-2-Propanone
- B: 2-Methyl-2-Propanal
- C: 2-Methyl-2-Acetone
- D: 2-Methylpropene

11. Which of the following is the correct sequence of processes in the industrial production of methanol?

- A: Purification --> Catalyst --> Compression --> Condenser
- B: Purification --> Compression --> Condenser --> Catalyst
- C: Compression --> Catalyst --> Condenser --> Purification
- D: Purification --> Compression --> Catalyst --> Condenser

12. $C_2H_5OH + PCl_5$ -----> ?

- A: $C_2H_5Cl + POCl_3 + HCl$
- B: $C_2H_6Cl_2 + POCl_3$
- C: $C_2H_5Cl + PCl_2 + HOCl_2$
- D: $C_2H_4 + POCl_3 + 2HCl$

13. In the industrial preparation of methanol mixture of CO and H_2or water gas is compressed at which pressure?

- A: 100 atmospheres
- B: 200 atmospheres
- C: 300 atmoaphere
- D: 400 atmospheres

14. Which enzyme is involved in the fermentation of glucose?

- A: Zymase
- B: Invertase
- C: Urease
- D: Diastase

15. Primary alcohols oxidize into aldehydes in the presence of which catalyst?

- A: $Cu + H_2SO_4$
- B: $V_2O_5 + H_2SO_4$
- C: $Al_2O_3 + H_2SO_4$
- D: $K_2Cr_2O_7 + H_2SO_4$

16. Which of the following undergoes nitration readily?

- A: Phenol
- B: Nitrobenzene
- C: Toulene
- D: Benzoic acid

17. The residue obtained after the crystallization of sugar from the sugar cane juice is called?

- A: Glucose
- B: Ethanol
- C: Starch
- D: Molasses

18. What is optimum temperature for the process of industrial fermentation of ethanol?

- A: 20-35 ºC
- B: 25-35 ºC
- C: 30-35 ºC
- D: 35-40 ºC

19. The formula for 2,4,6-tribromophenol is?

- A: A
- B: B
- C: C
- D: D

20. Which of the following is the common name of 2-Hydroxy propanoic Acid ?

- A: Tartaric acid
- B: Ethanoic acid
- C: Lactic acid
- D: Picric acid

Aldehydes & Ketones

TEST 1

1. A water soluble compound of molecular formula C_3H_6O gives yellow color crystalline solid on heating with I_2 and Na_2CO_3. The compound is?

- A: CH_2=$CHCH_2OH$
- B: CH_2=$CHOCH_3$
- C: CH_3COCH_3
- D: CH_3CH_2CHO

2. A "-CHO" group can be present:

- A: At the second carbon atom of the carbon chain
- B: Only at the end of of carbon atoms
- C: In between carbon chains
- D: At any position of carbon atoms

3. Aldehydes react with which of the following to form acetals?

- A: Aldehydes
- B: Ketones
- C: Alkyl halides
- D: Alcohols

4. Symmetrical structure of a ketone refers to:

- A: Uneven number of carbon atoms on either side of the carbonyl group
- B: Same number of carbon atoms on either side of the carbonyl group
- C: Just 1 carbon more on the right side of the carbonyl group
- D: Just 1 carbon more on the left side of the carbonyl group

5. Acetones react with HCN to form a cyanohydrin. It is an example of?

- A: Electrophilic addition
- B: Electrophilic substitution
- C: Nucleophilic addition
- D: Nucleophilic substitution

6. Which one of the following compound is a ketone?

- A: CH_2-O-CH_2-CH_3
- B: CH_3-CO-CH_2-CH_3
- C: $CH_3COCOOH$
- D: CH_3-CH_2CHO

7. Formaldehyde give an addition product with methyl magnesium iodide which on aqueous hydrolysis gives:

- A: $CH_3CHOHCH_3$
- B: C_2H_5OH
- C: CH_3OH
- D: $(CH_3)_2CHOH$

8. Which type of reaction is cannizaro's reaction?

- A: Disproportion reaction
- B: Self oxidation-reduction reaction
- C: Both of the above
- D: None of the above

9. Which of the following compounds will not give iodoform test on treatment with I_2/NaOH?

- A: Acetaldehyde
- B: Acetone
- C: Butanone
- D: 3-Pentanone

10. Which of the following product is prepared by the dry distillation of calcium acetate?

- A: Formic acid
- B: Acetic acid
- C: Acetone
- D: All of the above

11. Which of the following undergoes halform reaction ?

- A: HCHO
- B: $C_2H_5O_2CH_5$
- C: C_2H_5
- D: None of the above

12. Formalin is:

- A: 40% solution of CH_3CHO
- B: 60% solution of HCHO
- C: 100% solution of HCHO
- D: 40% solution of HCHO

13. In the oxidation of unsymmetrical ketones using strong oxidizing agents like conc. HNO_3, which carbon atom is preferentially attacked:

- A: Carbon atom with maximum number of hydrogen atoms
- B: Carbon atoms with least number of hydrogen atoms
- C: Alpha carbon
- D: Beta carbon

14. Methyl ketone is converted to carboxylic acid by haloform form reaction. The carboxylic acid formed has:

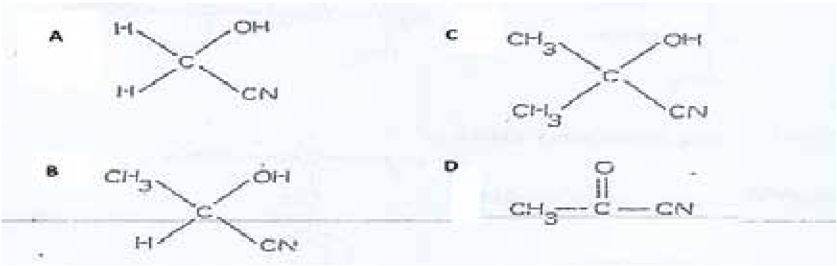
- A: One hydrogen atom less than parent compound
- B: One carbon atom less than parent compound
- C: One hydrogen and carbon atom less than parent compound
- D: Same number of carbon atom like parent compound

15. Which of the following compounds undergoes also condensation?

- A: C_2H_5CHO
- B: CH_3COCH_3
- C: CH_3CHO
- D: All of the above

Test 2

1. Formaldehyde reacts with HCN (NaCN + HCl) to give which of the following compounds?



- A: A
- B: B
- C: C
- D: D

2. Benzyl alcohol is obtained from benzaldehyde by:

- A: Aldol reaction
- B: Clemmenson's reaction
- C: Cannizaro's reaction
- D: Wurtz reaction

3. It is general formula of:

- A: 2,4-dinitrophenyl hydrazine
- B: 1,3-dinitrophenyl hydrazine
- C: Phenyl hydrazone
- D: None of the above.

4. Which statement is false regarding acetaldehyde and acetone:

- A: Both react with sodium bisulphite to form addition product
- B: Both react with hydrazine to form hydrazones
- C: Both react with hydroxylamine to form oximes
- D: Both reduce ammonical silver nitrate to give silver

5. Aldehydes on oxidation gives acids of:

- A: Same number as of the parent compound.
- B: Lesser number than the parent compound.
- C: More number than parent compound.
- D: None of the above.

6. **What is the minimum temperature required to prepare formaldehyde in the laboratory?**

- A: 500ºC
- B: 350ºC
- C: 550ºC
- D: 300ºC

7. **Formation of yellow or orange/red precipitates with 2,4-DNPH refers to the identification of:**

- A: Aldehydes
- B: Ketones
- C: Both of the above
- D: Pure alcohols only

8. **Bisulphite on heating with dilute mineral acids produce which of the following compound?**

- A: Aldehyde
- B: Ketone
- C: Both of the above
- D: None of the above

9. **The structural formula of the compound isomeric with acetone is:**

- A: C_3H_8O
- B: CH_3CHO
- C: CH_3CH_2OH
- D: CH_3CH_2CHO

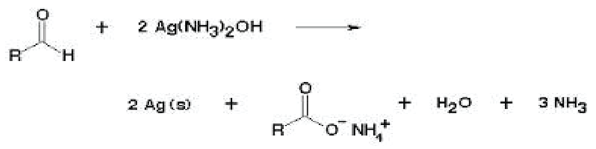
10. **Tollen's reagent is:**

- A: Alkaline solution containing K-tartrate
- B: Alkaline solution containing K-citrate
- C: Ammonical $AgNO_3$
- D: Ammonical Cu_2Cl_2

11. **Haloform test is given by:**

- A: Acetaldehyde
- B: Methyl group ketones
- C: Propanone
- D: All of the above

12. **Consider the following reaction:**



This reactions represents which of the following tests?

- A: Fehling's test
- B: Benedict's test
- C: Ninhydrin test
- D: Tollen's test

13. **Haloform test is used to distinguish:**

- A: Methyl ketones from other ketones.
- B: Ethanol from methanol.
- C: Both of the above.
- D: None of the above.

14. The clear fact for structural difference between and aldehyde and a ketone is:

A: An aldehyde always has only one R group on any single side of the carbonyl group or two H atoms on either sides of carbonyl group

B: Ketone must have two R groups on either sides of carbonyl group

C: Both of the above

D: Aldehydes have carbonyl group which has single bonded O atom while ketones have doubled bonded O atom

15. What is the hybridization of carbon in -CHO group?

A: sp

B: sp^2

C: sp^3

D: dsp^2

16. Formaldehyde is prepared in laboratory by passing the mixture of ______ over copper?

A: Vapours of formic acid and air

B: Dry formic acid and air

C: Vapours of methanol and air

D: Dry methanol and air

17. Fehling's solution is:

A: Acidified $AgNO_3$

B: Copper sulphate, sodium hydroxide and Rochelle salt

C: Ammonical $AgNo_3$ solution

D: Acidified $CuSO_4$ solution

18. Which of the following ketones will produce propanoic acid only after oxidation by acidified potassium dichromate:

A: Ethyl n-propyl ketone

B: Ethyl methyl ketone

C: Dimethyl ketone

D: Diethyl ketone

19. An alcohol giving positive 2,4-DNPH test implies that:

A: It is 100% pure

B: It may contain some contents of aldehydes and ketones

C: It is ethanol

D: None of the above

20. The yellow solid formed in idoform test is:

A: Insoluble in organic compounds.

B: Soluble in organic compounds.

C: Insoluble in water.

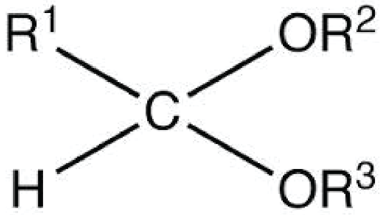
D: All except A.

Test 3

1. Calcium formate on heating gives:

- A: Methane
- B: Methanoic anhydride
- C: Formic acid
- D: Formaldehyde

2. Compound of general formula is known as:



- A: Diesters
- B: Hemiacetals
- C: Aldols
- D: Acetals

3.

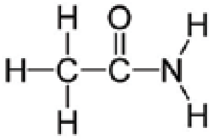
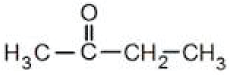
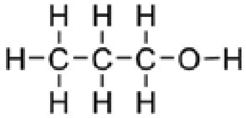
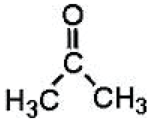
- A:

- B:

- C:

- D:

4. **Which group gives a yellow precipitate of triiodomethane when warmed with alkaline aqueous iodine?**

- A: An amide group, 
- B: Ethyl ketone group, 
- C: A primary alcohol group as in propanol, 
- D: Methyl ketone group, 

5. **Which of the following compounds does not undergo Cannizaro's reaction?**

- A: Acetone
- B: Methanal
- C: Benzaldehyde
- D: Trimethylacetaldehyde

6. **Which of the following compounds produce unsaturated compounds by losing water on heating in the presence of a dilute acid?**

- A: Bisulphite
- B: Cyanohydrins
- C: Aldols
- D: Hydrazones

7. **Both aldehydes and ketones are planer to neighbourhood of carbonyl groups. Which one of the follwing bond is distorted towards oxygen atoms?**

- A: n bond of C and O
- B: Sigma bond of C and H
- C: Sigma bond of C and O
- D: Sigma bond of C and C

8. **Which of the following reaction is used for the separation and purification of carbonyl compounds from non-carbonyl compounds?**

- A: Addition of grignard's reagents
- B: Addition of Hydrogen cyanide
- C: Addition of sodium bisulphate
- D: None of the above

9. **Primary alcohols normally give us aldehydes when oxidized in the presence of $Na_2Cr_2O_7$, what the product will be when secondary alcohols are oxidized in the same condition?**

- A: Alkenes
- B: Alkynes
- C: Ketones
- D: Alkyl halides

Test 4

1. The general formula of aldehydes is:

- A: $C_nH_{2n}O$
- B: C_nH_{2n}
- C: $C_nH_{2n}OH$
- D: $C_nH_{2n+2}O$

2. Which of the following compound is used to produce to acetaldehyde at industrial scale?

- A: Ethyl alcohol
- B: Ethanoic acid
- C: Ethylene
- D: Any of the above can be used

3. Accoring to I.U.P.A.C system aldehydes are:

- A: Alkenes
- B: Alkanals
- C: Alkynes
- D: alkanes

4. Which of the following compounds does not undergo aldol condensation?

- A: Benzaldehyde
- B: Ethyl methyl ketone
- C: Phenyl acetaldehyde
- D: Acetaldehyde

5. When two molecules of HCHO react in presence of a base to produce CH_3OH and HCOONa, the reaction is called:

- A: Clemmenson's condensation
- B: Aldol condensation
- C: Cannizaro's reaction
- D: Wurtz reaction

6. When a ketone is condensed into an aldol, the reagent used is:

- A: Cl_2
- B: Br_2 water
- C: Alkali
- D: $NaHCO_3$

7. Acetaldehyde can be prepared by dry distillation of:

- A: Calcium salts of formic acid
- B: Calcium salts of acetic acid
- C: Calcium salts of formic acids or acetic acid
- D: Calcium salts of formic acid and acetic acid

8. **Addition of unsymmetrical reagent to an unsymmetrical alkene is governed by :**

- A: Cannizaro's Reaction
- B: Krichoff rule
- C: Aldol Condensation
- D: Markownkov's rule

9. **Catalyst used for laboratory preparation of formaldehyde is:**

- A: Cd-Asbestos
- B: Pb-Asbestos
- C: Pt-Asbestos
- D: Cu-Asbestos

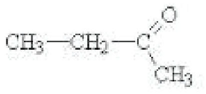
10. **One of the following compounds does not have α-hydrogen. Which is that?**

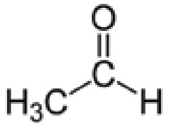
- A: Acetone
- B: Phenylacetaldehyde
- C: Formaldehyde
- D: Acetaldehyde

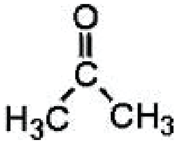
11. **Bisulphite on heating with dilute mineral acids produce which of the following compound?**

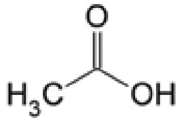
- A: Aldehyde
- B: Ketone
- C: Both of the above
- D: None of the above

12. **Which of the compounds will react with tollen's reagent :**

- A: 

- B: 

- C: 

- D: 

13. **Which of the following product is formed in cannizaro's reaction?**

- A: Alcohol
- B: Alkyl halide
- C: Acidic salt
- D: All except B

14. **Which of the following can give positive tri-iodo methane (CHI_3) test:**

- A: Dimethyl ketone
- B: Ethanal
- C: Ethyl methyl ketone
- D: All of the above

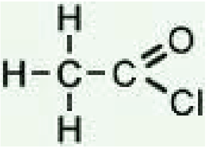
15. How many molecules of aldehyde is/are involved in cannizaro's reaction?

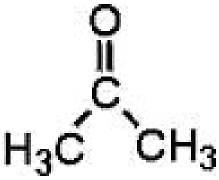
- A: One
- B: Two
- C: Three
- D: Four

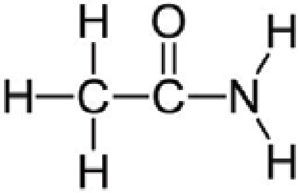
16. CH_3CHO and HCHO differ from each other towards:

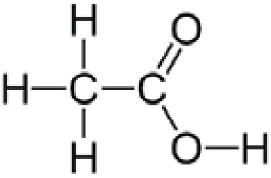
- A: Ammonical $AgNO_3$
- B: Ammonia
- C: Fehling's solution
- D: Schiff's reagent

17. Which of the following is the structure of a ketone?

- A: 

- B: 

- C: 

- D: 

18. Acidified hydrolysis of cyanohydrins forms which of the following?

- A: Carboxylic acids
- B: Alcohols
- C: hydroxy-carboxylic acids
- D: Aldols and ketols

19. Aldol condensation of acetaldehyde results in the formation of:

- A: $CH_3CH_2OH + CH_3COOH$
- B: CH_3-CH_2-CHOH-CHO
- C: CH_3-CO-CHO-CH_3
- D: CH_3-CHOH-CH_2-CHO

20. Silver mirror test is given by:

- A: Ethers
- B: Ketones
- C: Acids
- D: Aldehydes

Carboxylic & Amino Acids

TEST 1

1. **How many aliphatic acids are colorless liquids and have pungent smell?**

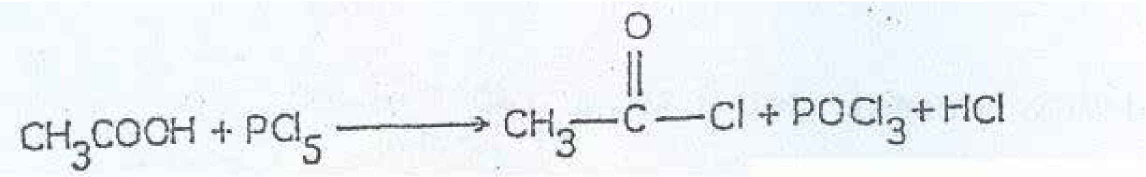
- A: First two
- B: First three
- C: First four
- D: First five

2. **The dilute solution of Acetic acid is called _____________?**

- A: Rectified spirit
- B: Methylated spirit
- C: Vinegar
- D: Alcohol

3. **Esters have __________ smell?**

- A: Pungent
- B: Sweet
- C: Fruity
- D: Esters are non-smelling.

4. 

In the above reaction the nucleophile that attacks on the carbon atom of the acid is:

- A: P
- B: Cl^-
- C: H^-
- D: OH^-

5. **The IUPAC names of saturated monocarboxylic acids are:**

- A: Alcoholic acids
- B: Aldehydic acids
- C: Alkanoic acids
- D: Carboxylic acids have no IUPAC names.

6. **$C_{15}H_{31}COOH$ is the formula of which of the following fatty acids?**

- A: Stearic acid
- B: Oxalic acid
- C: Palmitic acid
- D: Butyric acid

7. **The amino acids which our body is unable to synthesize and thus one has to take from outside are called___________?**

- A: Non-essential
- B: Essential
- C: α--Amino acid
- D: β--Amino acid

8. **Ethanedioc acid is also called___________?**

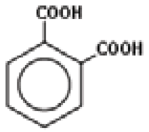
- A: Methanoic acid
- B: Acetic acid
- C: Phthalic acid
- D: Oxalic acid

9. **1,2- Benzenedicarboxylic acid is also called:**

- A: Malonic acid
- B: Benzoic acid
- C: Phthalic acid
- D: Oxalic acid

10. **If a large number of amino acids (100-1000) are joined by peptide bonds, resulting polymide is called a_______?**

- A: Peptide
- B: Amide
- C: Polyamide
- D: Polypeptide



11. **The given strucure is of which acid?**

- A: Benzoic acid
- B: Benzaldehyde
- C: Phthalic acid
- D: Malonic aicd

12. **Ethyl butyrate has a flavour of?**

- A: Apple
- B: Pineapple
- C: Apricot
- D: Banana

13. **Which of the following is not an amino acids**

- A: glumatic acid
- B: lactic acid
- C: aspartic acids
- D: glycine

14. Which acid is used in the manufacture of synthetic fibre?

- A: Formic acid
- B: Oxalic acid
- C: Carbonic acid
- D: Acetic acid

15. Which of the following is the most important Carboxylic acid?

- A: Formic acid
- B: Oxalic acid
- C: Stearic acid
- D: Acetic acid

16. The test which is used for the identification of amino-acids is

- A: Benedict Test
- B: Solution Test
- C: Ninhydrin Test
- D: Saturation Test

17. The melting points of carboxylic acids containing even number of carbon atoms is ____________ than those containing odd number of carbon atoms.

- A: Lower
- B: Higher
- C: Equal
- D: Sometimes increases, Sometimes decreases

18. Compounds containing both amino and carboxylic acid groups are called_________?

- A: Acidic anhydrides.
- B: Amides
- C: Amino acids
- D: Acetamides

19. The colour of acetic acid is?

- A: Blue
- B: Red
- C: Silver
- D: Colourless

20. Which of the following is a peptide linkage?

- A: -CO linkage
- B: -CN linkage
- C: -NP linkage
- D: None of these

Test 2

1. The boiling points of carboxylic acids are relatively high due to the presence of?

A: Acidic group

B: High carbon ratio

C: Hydrogen bonding

D: -COOH group

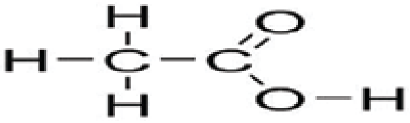
2. Which of the following process is used for the preparation of amino acids?

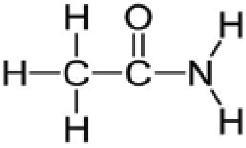
A: Wurtz Fitting reaction.

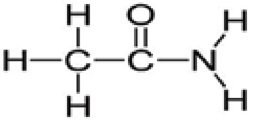
B: Grignard reaction

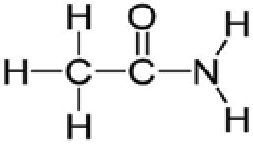
C: Strecker synthesis

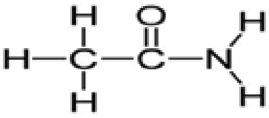
D: Cannizzaro's reaction

3.  **+ NH_3 + Heat ------------> ?**

A:  **+ CO_2**

B:  **+ H_2**

C:  **+ H_2O**

D:  **+ HCl**

4. The common name of propane 1 3-dioic is:

A: Oxalic acid

B: Aromatic acid

C: Malonic acid

D: Fumaric acid

5. Which of the following is a chemical formula for a Grignard reagent?

A: CH_3Cl

B: CH3-O-CH_3

C: CH_3-MgBr

D: CH_3MgR

6. A peptide having molecular mass more than 10,000 is called?

A: Polymide

B: Polypeptide

C: Amide

D: Protein

7. **The name of the compound** $CH_3 - CO - NH_2$ **is ?**

- A: Ammonium Alcohol
- B: Ethanide alcohol
- C: Acetamide
- D: Aaetic Anhydride

8. **Which of the following methods is not used for the general preparation of Carboxylic acids?**

- A: By the oxidation of primary alcohols
- B: From grignard reagent
- C: By the distillation of calcium acetate.
- D: By the hydrolysis of esters

9. **Compounds containing a cyanide group are called ________________?**

- A: Carboxylic
- B: Aliphatic
- C: Cynic
- D: Nitriles

10. **The amino acids which are formed in the human body are called?**

- A: Essential amino acids
- B: Non essential amino acids
- C: Alpha amino acids
- D: Delta amino acids

11. **Organic compounds containing both carboxyl and amino groups are called:**

- A: Fatty acid
- B: Amino acid
- C: Saccharide
- D: Amide

12. **Which method is not used for the preparation of acetic acid?**

- A: Oxiadtion of alcohols
- B: Oxidation of Aldehydes
- C: Oxidation of ketones
- D: All of the above

13. **In basic conditions amino acids exists in which of the following forms?**

- A: H_3N^+-CH_2-COOH
- B: H_2N-CH_2-COO^-
- C: H_3N^+-CH_2-COO^-
- D: H_2N-CH_2-COOH

14. Which one of the following reagent is used in the identification of amino acids?

- A: Fehling's reaction
- B: Benedicts Solution
- C: Ninhydrin
- D: Copper sulphate

15. Carboxylic acids can be prepared by the action of Grignard Reagent with__________?

- A: First CO_2 then adding HCl in the addition product
- B: First HCl then adding CO_2 in the addition product.
- C: Only CO_2
- D: Only HCl

16. Carboxylic acids react with ammonia to form ____________?

- A: Acid amides
- B: Ammonia
- C: Ammonium salts
- D: Cyanides

17. The trend of solubility of Carboxylic acids in water is that Solubility _____________ with the increase in molecular mass.

- A: Increases
- B: Decreases
- C: First increases then decreases
- D: First decreases then increases

18. The compound formed by the condensation of two or more α-amino acids are called?

- A: Amides
- B: Amines
- C: Peptides
- D: Polypeptides

19. Methyl cyanides, on boiling with mineral acids or alkalies,yield:

- A: Butanoic acid
- B: Acetic acid
- C: Formic acid
- D: Propanoic acid

20. Which dehydrating agent is used during the formation of acidic anhydride by the dehydration of carboxylic acid?

- A: $KMnO_4$
- B: $K_2Cr_2O_7$
- C: P_2O_5
- D: H_2SO_4

Test 3

1. **Which character is produced when an acid is added to an amino acid?**

- A: Basic character
- B: Acidic character
- C: Neutral character
- D: None of the above

2. **The amino acids exist in the form of dipolar ions which are called?**

- A: Internal salt
- B: Zwitter ion
- C: Both (A) and (B)
- D: Aldols

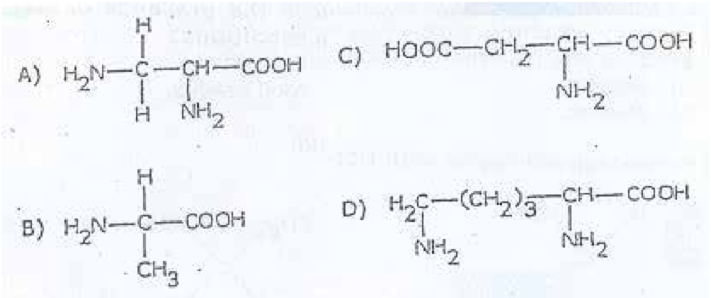
3. **The process used for the preparation of amino acids in which Hydrogen cyanide is added to an aldehyde in the presence of ammonia is called?**

- A: Clemmenson's process
- B: Wolf Kishner's method
- C: Strecker synthesis.
- D: Grignard process

4. **Which alcohol on oxidation with $K_2Cr_2O_7$ and dilute H_2SO_4 produces acetic acid?**

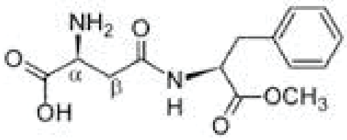
- A: Methanol
- B: Ethanol
- C: Butanol
- D: All of the above

5. **When ethanoyl chloride reacts with methyl amine an amide is formed. What is the structure of the amide formed:**



- A: A
- B: B
- C: C
- D: D

6. **The skeletal formula of dipeptide formed between aspartic acid and phenylalanine is given below as:**



How many functional groups are present in this formula?

- A: 1
- B: 2
- C: 3
- D: 4

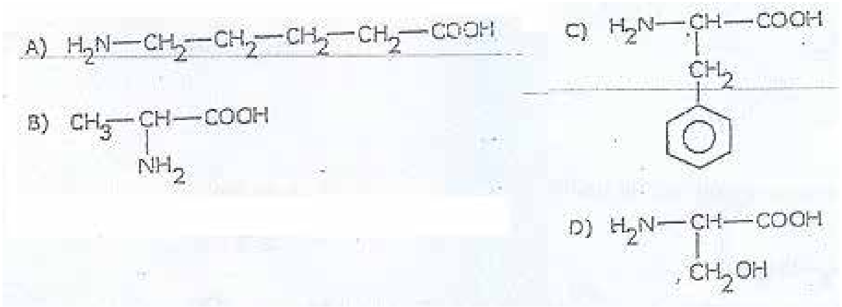
7. **What happens when alkenes are heated with alkaline $KMnO_4$?**

- A: Ethers are formed
- B: Aldehydes are formed
- C: Ketones are formed
- D: Carboxylic acids are formed.

8. **The acidic character of amino acids is due to which group?**

- A: Carboxylic group
- B: Amino group
- C: The central carbon
- D: All of these

9. **Which of the following structures is not an α-amino acid?**



- A: A
- B: B
- C: C
- D: D

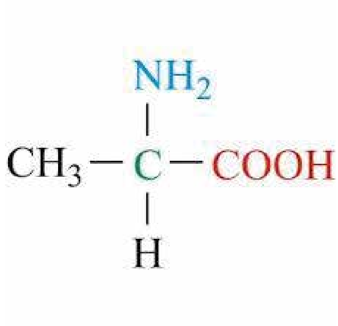
10. **Ninhydrin reacts with amino acid to form which colored product?**

- A: Violet
- B: Blue
- C: Bluish-Violet
- D: Bluish yellow

11. Alkenes when heated with ______________ are cleaved at double bond to form carboxylic acids?

- A: K_2SO_4
- B: $K_2Cr_2O_7$
- C: Alkaline $KMnO_4$
- D: Alcoholic KOH

12. What is the name of amino acid in the figure below?



- A: Glycine
- B: Lysine
- C: Aspartic acid
- D: Alanine

13. The ninhydrin test is used to visualise amino acids separated by which process?

- A: Crystallization
- B: Sublimation
- C: Filtration
- D: Paper- Chromatography.

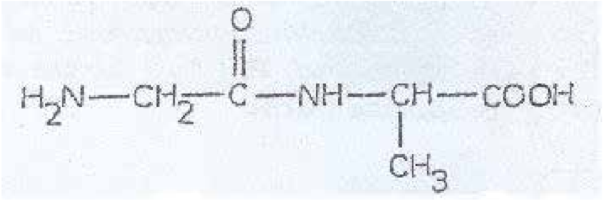
14. Carboxlic acid after reacting with ammonia and then heated produce ______________?

- A: Ammonium salts
- B: Amino acids
- C: Acid amides
- D: Cyanides

15. Carboxylic acids on reaction with lithium aluminum hydride are partially reduced to _________?

- A: Alkanes
- B: Ethers
- C: Alcohols
- D: This reaction does not take place.

16. Styructure of dipeptide is :



This is called?

- A: Glycyl alanine
- B: Glycyl glycine
- C: Alaninyl alanine
- D: Alaninyl glycine

17. Organic compounds X and Y both can react with Na metal to evolve hydrogen gas. X and Y if react with each other form an organic compound Z which gives fruity smell. What type of compounds X,Y and Z are?

- A: X = Alcohol Y = Ester, Z = Acetic acid
- B: X = Alcohol Y = Ester, Z = Mineral acid
- C: X = Alcohol, Y= Acetic acid, Z = Ester
- D: X = Alcohol, Y=Mineral Acid , Z = Ester

18. What is Correct about the formation of Z witter ion?

- A: Proton goes from amino group to Carboxyl group.
- B: Positive charge is present on Carboxyl group.
- C: Proton goes from Carboxyl group to amino group.
- D: Negative charge is present on amino group.

19. Which of the following reaction is not given by a carboxylic acid?

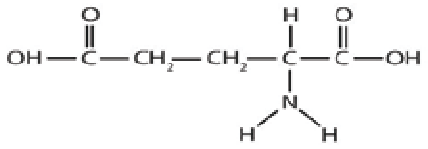
- A: Salt formation reactions
- B: Reaction in which OH group is replaced.
- C: The reaction involving carboxyl group as a whole.
- D: It undergoes all above type of reactions.

20. The addition of a nucleophile to carboxylic acids is always followed by the displacement of ___________ by some other group producing a carboxylic acid derivative?

- A: H-atom
- B: -COOH group
- C: C=O group
- D: -OH group

Test 4

1. **Which one of the following has this formula ?**



- A: Acetic acid
- B: Glutamic acid
- C: Ether
- D: Alcohol

2. **Which of the following group is replaced when esters are formed by the reaction of carboxylic acids and alcohols?**

- A: -H
- B: -OH
- C: -COOH
- D: C=O

3. **Which of the following is the flavour of octyl acetate.**

- A: Mango
- B: Banana
- C: Orange
- D: Apple

4. **The formation of ester from acetic acid in the presence of acid and ethanol is a :**

- A: Nucleophilic addition reaction
- B: Nucleophilic substitution reaction
- C: Electrophilic substitution reaction
- D: Electrophilic addition reaction

5. **Glycine is the name of an amino acid because**

- A: Sweet taste
- B: Bitter taste
- C: Shining appearance
- D: Green colour

6. **Two or more amino acids condensed to form protein by a peptide linkage which is present between two atoms of:**

- A: C and C
- B: C and N
- C: C and H
- D: C and O

7. **Carboxylic acid on reduction with HI / phosphorous yields**

- A: Aldehydes
- B: Alcohols
- C: Alkanes
- D: Ketones

8. **Which of the following acid is formed when CH_3-MgBr reacts with O=C=O in the presence of dry ether and then the acidic hyrdolysis of the product formed.**

- A: Formic acid
- B: Acetic acid
- C: Carbonic acid
- D: Malonic acid

9. **The chemical nature of Glycine $H_2N - CH_2 - COOH$ is that it is__________ in nature?**

- A: Neutral
- B: Acidic
- C: Basic
- D: None of the above.

10. **The amino acid given in the below diagram is ______ amino acid?**

$NH_2\text{--}CH_2\text{--}CH_2\text{--}CH_2\text{--}COOH$

- A: α-Amino acid
- B: β-Amino acid
- C: γ-Amino acid
- D: None of these.

11. **Which of the following is formed, when Carboxlic acids heated with alcohols in the presence of conc. H_2SO_4?**

- A: Ethers
- B: Ketones
- C: Salts
- D: Esters

12. **Alkane nitriles(R-CN) can be prepared by treating alkyl halide with ______________?**

- A: Nitrogen cyanide
- B: Alkyl cyanide
- C: Potassium cyanide
- D: Alcoholic Potassium cyanide

13. Aliphatic monocarboxylic acids are prepared by the hydrolysis of:

- A: Fats and lipids
- B: Fats and oils
- C: Lipids and proteins
- D: Fats and proteins

14. Which one of the following is an example of condensation polymer?

- A: Polyvinylchloride
- B: Polystyrene
- C: Polythene
- D: Polyamide

15. Almost all the naturally occuring amino acids are _____________?

- A: α-Amino acid
- B: β-Amino acid
- C: γ-Amino acid
- D: None of these

16. Which one of following amino acid is neither acidic nor a basic in nature?

- A: Lysine
- B: Histidine
- C: Proline
- D: Glutamic acid

17. Which of the following can differ in an amino acid?

- A: R-group
- B: Carbony -group
- C: Amino –group
- D: Oxygen in a carboxyl group

18. The common thing in phthalic acid and malonic aciid is that both are:

- A: Aromatic
- B: Dicarboxylic
- C: Hydrocarbons
- D: Strong acids

19. If 18.0 grams of glucose is dissolved in 1 Kg of water,boiling point of this solution should be:

- A: 100.52°C
- B: 100.052°C
- C: 100.00°C
- D: Less than 100°C

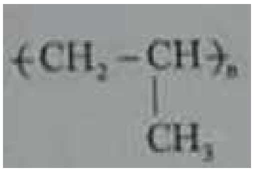
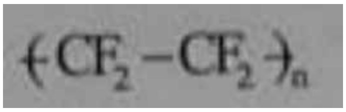
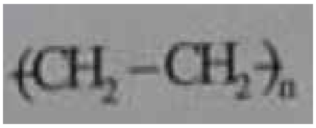
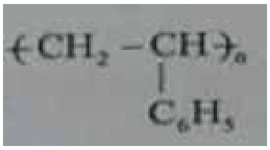
20. In low pH or acidic condition amino acids act as :

- A: Anion
- B: Cation
- C: Zwittor ion
- D: Neutral specie

Macro- Molecules

TEST 1

1. Which one of the following is the structure of polystyrene?

- A: 
- B: 
- C: 
- D: 

2. The molecular mass of the polymer is the product of :

- A: M.M of all repeating units and M.M of 1 repeating unit
- B: DP and M.M of all repeating units
- C: M.M of repeating unit and DP
- D: None of these.

3. How many strands are there in a RNA?

- A: 1
- B: 2
- C: 3
- D: 4

4. The amount of free acid present in a fat or oil determines its?

- A: Saponification number
- B: Iodine number
- C: Acid number
- D: Rancid number

5. How many total carbon atoms are present in all the 4 rings of the perhydrocyclopentanophenanthrene, the parent nucleus of sterols?

- A: 12
- B: 16
- C: 17
- D: 18

6. The enzymes have a ability to catalyze the reactions upto __________ times?

- A: 10^{21}
- B: 10^{20}
- C: 10^{18}
- D: 10^{16}

7. Polyvinyl acetate (PVA) is colourless and non-toxic resin used as an adhesive and as a binder for making:

- A: Emulsion paints
- B: Toys
- C: Gramophone
- D: Compact discs

8. Enzymes with exceptions are actually _________ in nature?

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- B: Lipids
- C: Fats
- D: Proteins

9. Among the most common disachride, which one of the following is present in milk?

- A: Sucrose
- B: Maltose
- C: Fructose
- D: Lactose

10. Polyvinyl chloride is an example of:

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- B: Biopolymer
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12. Starch is a polmer of _________?

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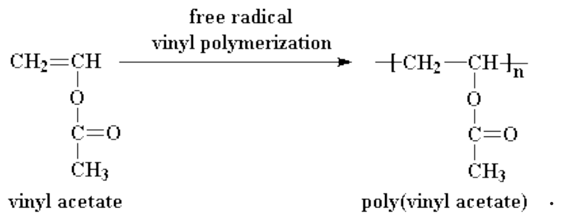
- B: α- D-glucose
- C: β- D- glucose
- D: Lactose

13. The principle energy storage carbohydrate in animals is :

- A: Glucose
- B: Starch
- C: Glycogen
- D: Protein

14. Which type of polymeriztion process is this?



- A: Addition polymerization
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- C: Thermosetting polymerization
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15. Which of the following is incorrect about monosaccharides?

- A: They are simple sugars
- B: They cannot be hydrolysed
- C: They can be hydrolysed
- D: Glucose and fructose are thier examples

16. Adinine and Guanine are included in which type of Nitrogenous bases?

- A: Purines
- B: Pyrimidenes
- C: Both
- D: These are not nitrogenous bases

17. Glucose and fructose are common examples of:

- A: Pentose
- B: Hexoses
- C: Heptoses
- D: Butoses

18. Which of the following is correct about PVC's?

- A: It is formed by condensation polymerization
- B: It is formed by addition polymerization
- C: It is a thermosetting polymer
- D: It is a terpolymer.

19. Enzymes are actually __________ in nature.

- A: Carbohydrates
- B: Fats
- C: Lipids
- D: Proteins

20. The molecular weight of glyceroltripalmitate is?

- A: 208
- B: 168
- C: 1400
- D: 807

Test 2

1. Macromolecules are defined as large molecules built up from small repeating units called:

- A: Monomers
- B: Isomers
- C: Metsmers
- D: Tautomers

2. Polymide is formed due to condensation of hexane-dioc acid with :

- A: Hexane-1,5 diamine
- B: Hexane-1,6 diamine
- C: Hexane-1,4 diamine
- D: Hexane-2,5 diamine

3. What is the characteristic of enzymes about their direction?

- A: They catalyse in forward direction only
- B: They catalyse in backward direction only
- C: They catalyse in both directions
- D: They don't catalyse reactions

4. PVC is an example of which of the following?

- A: Addition polymer
- B: Condensation polymer
- C: Bioploymer
- D: Thermosetting polymer

5. Which compound has a structure in which two of the hydroxyl groups are esterified with fatty acids and third forms a link with phosphoric acid or a derivative of phosphoric acid?

- A: Steroids
- B: Lipids
- C: Phospholipids
- D: Nucleic acids

6. What will be the catalyst in the following reaction:

$$Triglyceride + 3H_2O \xrightarrow{?} Glycerol + 3Fattyacids$$

- A: Proteins
- B: Sulphuric acid
- C: Sugars
- D: Lipases

7. Adipic acid and hexamethylene diamine , both of these have _______ carbon atoms.

- A: Seven
- B: Eight
- C: Four
- D: Six

8. Enzymes are classified into ho many types?

- A: 2
- B: 4
- C: 5
- D: 6

9. The increased quantities of chloestrol in blood make plaque like deposits in the arteries causing:

- A: Cholera
- B: Heart attack
- C: Down's syndrome
- D: Phenylketoneuria

10. How much amylopectin is present in natural starch?

- A: 10%
- B: 10-20%
- C: 40-60%
- D: 80-90%

11. The enzymatic reaction occurs best at what temperature?

- A: 30^oC
- B: 35^oC
- C: 37^oC
- D: 40^oC

12. What is the action of radiations on the enzymes?

- A: They are activated
- B: They are inactivated
- C: They give fast reaction
- D: Denatured

13. Both ribose and deoxyribose are monosaccharide’s containing _______ carbon atoms.

- A: Four
- B: Five
- C: Six
- D: Seven

14. Activators are ___________ substances that increase enzymatic activity.

- A: Organic
- B: Inorganic
- C: Ionic
- D: All of these

15. Starch is a polymer of:

- A: α - D Glucose
- B: β - D Glucose
- C: γ - D Glucose
- D: α - L glucose

16. The long chain formula of which compound was not proposed by Staudinger?

- A: Polystyrene
- B: Rubber
- C: Vinyl acetate
- D: Polyoxymethylene

17. What happens when a plasticizer is added to a polymer?

- A: It reduces the flexibility
- B: It improves the quality
- C: It improves the flexibility
- D: It improves the strength.

18. Animals store glucose in the form of ___________?

- A: Starch
- B: Glycogen
- C: Lipids
- D: They cannot store.

19. Which condition is responsible for the conversion of Ergo sterol into Vitamin D_2 and ergocalceferol?

- A: Heating
- B: Cooling
- C: Irradiated with U.V rays
- D: Melting

20. Terylene, a polyester is an example of:

- A: Bioploymer
- B: Lipids
- C: Condensation polymer
- D: Addition polymer

Test 3

1. **Which type of glycosidic linkage is present in Amylopectin?**

A: 1-4 glycosidic linkage
B: 1-6 glycosidic linkage
C: Both glycosidic linkages
D: None of these

2. **The conversion of fumaric acid to maleic acid in the presence of fumarase enzymes. This is an example of which category of enzymes?**

A: Lyases
B: Hydrolases
C: Isomerases
D: Ligases

3. **The hydrolysis of fats and oils with an alkali to form soap and glycerol is called _________?**

A: Hydrolysis
B: Hardening of oils
C: Saponification
D: Softening of fats

4. **Which enzyme is used for the treatment of rickets and obstructive jaundice?**

A: LDH-1
B: L-asparagenase
C: Thrombin
D: Alkaline phosphates

5. **Hexokinase catalyses the conversion of hexoses like glucose, fructose and mannose to their ________?**

A: Branched structure
B: Cyclic structure
C: 6-Phosphate derivative
D: Isomers

6. **Which one is correct for ligases?**

A: They catalyze a reaction
B: They transfer different groups
C: They yield isomers
D: Link two molecules together.

7. **Which one is involved in putting the genetic information to work in the cell?**

A: DNA
B: RNA
C: Both
D: rRNA

8. Which one does not occur in RNA?

- A: Cytosine
- B: Thymine
- C: Uracil
- D: Guanine

9. is structure of?

- A: Thiamine
- B: -tocopherol
- C: Calciferol
- D: Menadoine

10. Raffinose is a:

- A: Monosaccharide
- B: Disaccharide
- C: Trisaccharide
- D: None of these

11. What kind of change occurs in thermosetting plastics on heating?

- A: It melts
- B: It becomes hard
- C: It decomposes
- D: It sublimes

12. Saponification number is defined as the number of __________ of KOH or NaOH to Saponify one gram of fat or oil

- A: Grams
- B: Milligram
- C: Kg
- D: Pounds

13. Different enzymes are used for the treatment of different diseases. Which enzyme is raised in Heart diseases?

- A: Alkaline phosphate
- B: Thrombin
- C: LDH-1
- D: L-asparagines

14. What will be correct for the relation of concentration of enzymes to the rate of reaction?

- A: Directly proportional
- B: Inversely proportional
- C: Directly proportional to the square root of enzmes
- D: Inversely proportional to the square root of enzymes

15. If the Molecular mass of the repeating unit is 60 and the degree of polymerization is 30. What will be the Molecular mass of that polymer?

- A: 2
- B: 60
- C: 900
- D: 1800

16. Which one is not included in Pyrimidenes?

- A: Cytosine
- B: Uracil
- C: Guanine
- D: Thymine

17. Pentose's and Hexodes are most stable in which form?

- A: Straight chains
- B: Branched chains
- C: Interconnect 3 dimensional
- D: Cyclic structure

18. The molecular mass of Polyvinyl chloride having DP 1000, is _______?

- A: 63
- B: 1000
- C: 6300
- D: 63000

19. How many rings are present in parent nucleus of steroids?

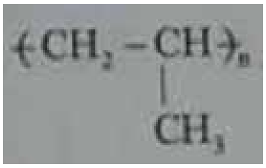
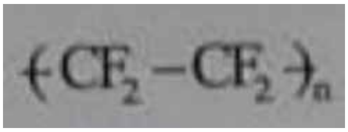
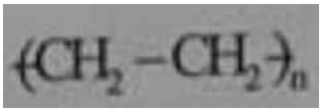
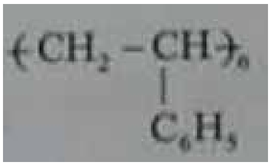
- A: 1
- B: 2
- C: 3
- D: 4

20. Cholesterol is the precursor of?

- A: Enzymes
- B: Lipids
- C: Steroid hormones
- D: Fats

Test 4

1. **Which one of the following is the structure of polystyrene?**

- A: 
- B: 
- C: 
- D: 

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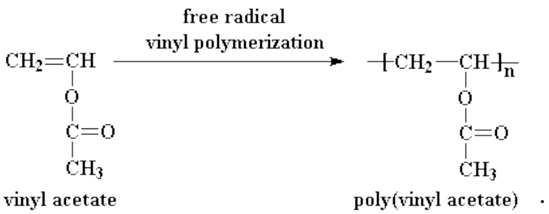

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Basics of Chemistry

Test 1

1. Spectrometry
2. Molecular formula
3. 37.5 %
4. 120 g
5. Carbon taken as 12.
6. None of the above.
7. They are isotopes.
8. That is consumed earlier.
9. It has 20 moles of hydrogen atoms.
10. 1 : 2
11. 4.3×10^{-3}
12. Hydrogen
13. Sand
14. Molar volume of any gas at a given temperature and pressure is constant.
15. 1.6×10^{-27} kg
16. 22 g
17. All would have same number of atoms.
18. Smallest particle of an element which can undergo a chemical reaction
19. Mass-volume relationship
20. 29 %

Test 2

1. 320 g
2. Tritium
3. Four
4. 6.02×10^{23}
5. 0.2 nm
6. 20.18amu
7. 280
8. Water at high temperature
9. 20.18
10. May be same or different
11. 1 g of hydrogen.
12. 2000 times of empirical formula
13. 2.4 g
14. 100 liters.
15. 8
16. 3
17. $X_3Y_3Z_4$
18. $C_6H_6O_2$
19. Relative abundances of isotopes
20. 4

Test 3

1. 2.88×10^{-3}
2. 28.2 litres.
3. Generally elements with odd atomic number have more isotopes
4. C_3H_6
5. Only transition elements
6. XY_2
7. 2 g of Nitrogen
8. 35%
9. 99.3 %
10. 2g of H_2O
11. 3.125×10^{-2}
12. 0.02 moles
13. 3.35×10^{25}
14. 530 mg
15. $MgSO_4.2H_2O$
16. 3.01×10^{23}

Test 4

1. 1:35.5
2. 0.56 g
3. $2 \times 6.022 \times 10^{23}$ atoms
4. 5.4×10^{23}
5. Exothermic
6. Mass spectrometry
7. NaF_2O_3
8. 1.5×10^{23}
9. 10,000
10. Mass spectrometry
11. 3
12. 4
13. 0.1
14. 17.2 %

Gases, Liquids & Solids

Test 1

1. Critical temperature
2. Decrease by half
3. 8.314 J K^{-1} mol^{-1}
4. 22.414 dm^3
5. Habit
6. 22 liters
7. Molar mass
8. 6
9. Effusion
10. Plastic
11. 7
12. All of the above.
13. 22.414 dm^3
14. 4
15. Heat absorbed by one mole of a solid when it melts into the liquid form at its melting point.
16. Dipole-dipole forces
17. 2
18. Ions, electrons and neutral atoms
19. Helium and Oxygen
20. London dispersion forces

Test 2

1. Graphite
2. (3/2) (RT/N_a)
3. They are non-polar compounds.
4. 2.5 atm
5. Benzoic acid
6. HCl is more acidic.
7. 8 cm^3
8. Boyle's Law
9. Four H-Atom
10. 6
11. It can form hydrogen bonding with water.
12. London dispersion forces.
13. Closer to ideal gas
14. Both B and C
15. Neutral
16. They are brittle
17. Allotropy
18. Plasma
19. Covalent solids
20. NH_3

Test 3

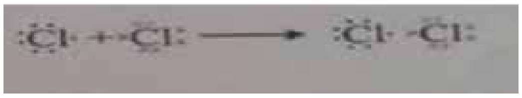
1. 1.8 atm
2. Lowering pressure
3. CO_2
4. Increase
5. Iodine
6. 1 / Volume
7. None of the above
8. London dispersion forces
9. They are polar in nature.
10. Lower
11. Petrol molecules experience weaker london forces
12. Diamond
13. 1 : 1
14. 1
15. Increase
16. A
17. Electrical conductivity

Test 4

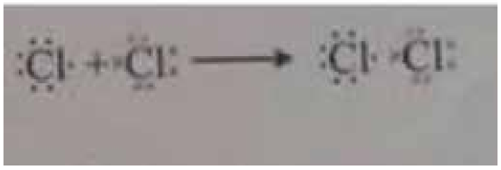
1. Nitrogen
2. Both electric and magnetic fields.
3. CO_2
4. Metallic solids
5. CO
6. Dipole-Induced dipole forces
7. In Graphite one of the valence electron is free to move
8. Metallic substances
9. 314 pm
10. Y has greater heat of sublimation than X
11. Covalent
12. $H_2O > HF > NH_3 > HCl$
13. PV = 2/3 kT
14. 2 liter
15. V=RnT/P (when P and T are constant)
16. Triclinic
17. Crystalline solids
18. $NaNO_3$ & KNO_3
19. 15
20. Stronger than petrol

Atomic Structure

Test 1

1. 0, +1 ,+2
2. Ultra violet
3. nearest to the nucleus
4. J.J. Thomson
5. 1313.31 $kJmol^{-1}$
6. Violet
7. A discharge is produced
8. Red
9. 400–750 nm
10. -1, 0, +1
11. Magnetic quantum number
12. energy is emitted
13. 1313 kJ/mol
14. $\nu = \sqrt{a(Z - b)}$
15. Atomic orbital
16. Nucleus
17. Principal
18. 
19. 0.529 A^o
20. Positive

Test 2

1. Large atomic mass
2. Gold
3. 6 electrons, 6 protons, 6 neutrons
4. d-sub shell
5. Its energy remains constant
6. Nucleons
7. 18
8. J.J Thomson
9. Both A and B
10. 5s>3d>4s>3p
11. 8
12. 8
13. 8
14. Nodal surface
15. 
16. helium atoms
17. Magnetic field
18. Electrons
19. 4s<3d<4p
20. The nature of gas taken in the discharge tube.

Test 3

1. E= hc / λ
2. $3664 \times 10^{-10} J$
3. are distributed in three dimensional charge cloud around the nucleus
4. Emission Spectrum
5. 9 times
6. 9.1095×10^{-31}kg
7. Three
8. Doublet line structure
9. 2nd orbit
10. Infrared region
11. 500 nm
12. Hunds rule
13. 6.626×10^{-32} m
14. Atomic absorption spectrum
15. Pauli's Exclusion Principle
16. Line
17. Lone pair-Lone pair>Lone pair-Bond pair>Bond pair-Bond pair
18. The position and velocity of the electrons in the orbit cannot be determined simultaneously.

Test 4

1. 1st orbit
2. 6p
3. number of protons and neutrons in the nucleus
4. Independent of its wavelength
5. positive rays
6. Increase
7. Zero
8. Lower wavelength
9. N= 3, l = 2, m = 0, s = +1/2
10. Depends upon the composition of glass
11. Is independent of the nature of gas used in the discharge tube.
12. 9
13. 1.7588×10^{11}C kg^{-1}
14. possess momentum
15. Dalton's theory
16. γ-radiations
17. Heisenberg uncertainty principle
18. 3
19. Two
20. Millikan

Chemical Bonding

Test 1

1. Neutral
2. Both shape and energies
3. Zero
4. Coordinate Covalent Bond
5. Minimum energy
6. Both A and B
7. Coordination complex compounds
8. Reactivity of covalent compounds $<$ ionic compounds
9. Fluorine
10. Noble gases
11. 3 Bond and 1 lone pair
12. Octet rule
13. Electro negativity and Ionization energy
14. Hybridization
15. Decrease
16. 109.5^{o}
17. Polar covalent bond
18. Zero
19. 3
20. Non-directional nature

Test 2

1. Linear
2. Positive
3. Spectroscopic measurement
4. Unpaired electrons in an atom or molecule
5. Twelve σ and six π
6. Decreases
7. 1 and 7
8. Zero
9. All of these
10. Debye
11. Zero
12. Decreases
13. Ne
14. Zero
15. Maximum
16. Larger
17. 1.85D
18. Pie (π) bond
19. Both Lone and Bond pairs
20. No unit

Test 3

1. Perpendicular to the layers
2. CH_3CN
3. 92°
4. 43.2%
5. Metalloids
6. Oxonium ions
7. All of these
8. 8
9. 2
10. BF_3
11. Paramagnetic
12. 102°
13. 92%
14. Nylholm and Gillespie
15. VI-A
16. Oxygen and Chlorine
17. Non-polar covalent
18. 3.336 x 10^{--30}mC
19. Qualitative
20. ($\mu_{obs} \div \mu_{ionic}$) x 100

Test 4

1. Greater the s-character shorter will be the bond length
2. Duplet rule
3. SF_6
4. 6
5. Polar covalent bond
6. One σ and two π
7. Smaller
8. $C \equiv O$
9. Electro negativity
10. 4
11. Hydration energy
12. 90°
13. 25%
14. $F^{\delta-} - H^{\delta+}$ --------------- $F^{\delta-} - H^{\delta+}$
15. electropositive to electronegative end
16. Bent or Angular
17. Polar
18. Sigma (σ) bond
19. 4
20. Sigma Bond

Thermochemistry

Test 1

1. Internal energy.
2. Water will freeze
3. -Q,+W
4. Exothermic.
5. Internal energy of the system increases and no work is done on the surrounding
6. Continue to occur once started.
7. Thermo chemistry.
8. Sublimation of a salt.
9. Q
10. JK^{-1}
11. 298 K, 1 atm and all reactants and products in standard form.
12. Bond breaking absorb energy and bond making release energy.
13. q = ΔH at constant P; q = ΔE at constant V
14. Zero.

Test 2

1. Both A and B
2. Endothermic.
3. Enthalpy of neutralization.
4. All of the above.
5. Remain same
6. Change in enthalpy.
7. Spontaneous endothermic process.
8. q_p
9. Exothermic reactions
10. i only
11. Energy arising out of gravitational pull
12. Reaction must be carried out at low temperature
13. $N_2 + H_2$ -----------> $2NH_3$ ΔH = -41 kJ/mol
14. 1/2 H_2O (L) ---------> H_2 (g) + $1/2O_2$ (g) $-218kJmol^{-1}$
15. *Enthalpy*
16. Reversible process.
17. Enthalpy of the products is less than that of the reactants.
18. -110 KJ/mol
19. Endothermic processes
20. -57.4 KJ/Mol

Test 3

1. The system has constant volume.
2. -110.5 KJ
3. 99900 J
4. Positive
5. 167 KJ
6. Zero
7. - 45 kJ
8. + 400 J
9. $1/2H_2$ -------------> H $\Delta H = -C$
10. Endothermic
11. -2 KJ
12. Free energy.
13. - 20 KJ
14. $H_f = H_r / 2$
15. NaOH + HCl ---------------> NaCl + H_2O
16. Total energy of the products is never equal to that of the reactants.
17. i, ii and iii only.
18. The reaction in exothermic.
19. KOH and HCl
20. $H_2(g) + 2O_2(g)$ ---------> $2H_2O(l)$ at 298 K and 1 atm

Test 4

1. 400 kJ
2. H_2O (g) ---> H_2O (S)
3. Always negative
4. C (graphite) + $2H_2(g)$ --> $CH_4(g)$
5. -229.7 KJ
6. q + r + 2s
7. Work
8. Heat of sublimation.
9. They may be exothermic or endothermic.
10. The amount of heat absorbed or evolved when one mole of a substance is dissolved in so much solvent that further dilution results in no detectable heat change.
11. Formation
12. Standard enthalpy of reaction.
13. Exothermic reactions
14. $q = ms\Delta T$
15. Heat reaction can be accurately measured only for a few reactions.
16. Decreases
17. Synthesis of glucose by plants.
18. +14.78
19. Zero.
20. $\Sigma\Delta H$ (products) - $\Sigma\Delta H$ (reactants)

Chemical Equilibrium

Test 1

1. Reactants moles at equilibrium are equal to the products moles.
2. Rate of formation of ammonia is low at lower temperatures.
3. 7.35 - 7.4
4. All of the above
5. Rate at which reaction proceeds is directly proportional to the product of active masses of the reactants.
6. . Strong base
7. Acid.
8. moles / dm^3
9. All of the above.
10. $K_p = K_c(RT)^{\Delta n}$
11. K_a x K_b
12. Concentration or Pressure.
13. log 10^{-4}
14. Its capability to resist a change in pH
15. Common ion effect.
16. Less than 7
17. mole
18. $[H_3O^+]$ $[A^-]$ / [HA]
19. If a stress is applied to a system at equilibrium the system acts to nullify the effect of stress.
20. Equilibrium is less favoured towards the forward direction.

Test 2

1. KCI is more soluble in water than $KCIO_3$
2. Increase the yield of NH_3 but will not change the value of Kc.
3. $N_2 + O_2$ ---> 2NO
4. Strong bases would have large value for K_b and small value for $pK_{b.}$
5. Temperature
6. 10^{-13}
7. Catalyst increases the rate of reaction in both forward and reverse direction and has no effect on the equilibrium.
8. 10^{-12}
9. Mixing a weak acid and a salt of it with a strong base.
10. Iron mixed with MgO
11. It is a weak electrolyte
12. Has no effect on its solubility
13. *Air*
14. pOH = pK_b + log [salt] / [base]
15. 1.0
16. $[C]^c[D]^d$ / $[A]^a[B]^b$
17. Common ion effect
18. Concentration of carbon dioxide will be much larger than both reactants.
19. Strong
20. Decrease with the increase in temperature

Test 3

1. Increasing temperature
2. K_a would remain same.
3. $4x^2 / (a-x)V$
4. P = 200-300 atm and T = 673 K
5. 11
6. 5.74
7. Value of K_w increases non-linearly with increasing temperature.
8. 0.015
9. $4S^3$
10. 0.2 %
11. 32×10^{-18}
12. 5×10^{-12}
13. 1.36
14. $2HF \rightleftharpoons H_2 + F_2$
15. 0.267 mol/liter
16. One acid is hundred times stronger than the other.
17. $CH_3COONa + CH_3COOH$
18. $108s^5$

Test 4

1. $K_{sp} = [A^{+y}]^x [B^{-x}]^y$
2. Proceed in forward direction
3. More product (ammonia) will form
4. Pressure
5. Forward reaction would occur
6. Low temperature and high pressure
7. 3×10^{-3} mol/L
8. Both a and b
9. pH
10. 35%
11. No unit
12. 20g of NaOH in 1 lit of solution
13. C
14. $K_p = K_c$

Solutions

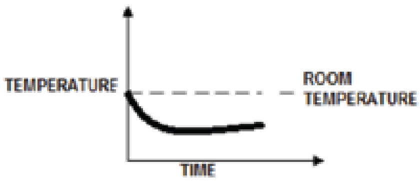
Test 1

1. The components show positive and negative deviations from Raoult' s law.
2. Creation of antifreeze.
3. Landsberger's method.
4. Solute < Solvent
5. Ionization energy
6. Hydration
7. Water-Benzene
8. i, ii and iii.
9. Properties that depend on the number of solute and solvent molecules.
10. Molality
11. A homogeneous mixture of two or more kinds of different substances.
12. All of the above.
13. Number of moles of solute in 1 liter of the solution.
14. $p = p^o x$
15. Upper consulate temperature
16. Molecular mass determination.
17. Hydrolysis
18. Their volume may increase or decrease on mixing.
19. Partially miscible liquids
20. Phase

Test 2

1. Lowering of vapour pressure is directly proportional to the mole fraction of solute.
2. Solution
3. The number of cm^3 of a solute dissolved per 100g of the solution.
4. 0.55
5. Weight of the solute dissolved per 100 parts by weight of the solution.
6. Mole fraction
7. The first step is endothermic and the second is exothermic.
8. Solids, liquids and gases all can act as a solvent in a solution.
9. ii and iii only
10. 250 ppm
11. Acetaldehyde
12. Neutral solution.
13. $M_2 = \frac{p^o}{\Delta p}\frac{W_2 M_1}{W_1}$
14. 0.018
15. High charge density ions.
16. 25 %
17. i and iii only
18. Parts per million
19. Melting point of the solute.
20. 5.65

Test 3

1. $Ce_2(SO_4)_3$
2. SR + SQ
3. Molal aqueous solution of a solute is dilute as compared to the molar solution.
4. 3.75g
5. 5
6. Mole fraction of C_2H_5OH and water is same
7. 

   Right
8. 0.4 K
9. I
10. Azeotropic mixtures.
11. 0.28
12. exhibits positive deviation from Raoult's law.
13. < 100 ml
14. 0.0284
15. 14 mol of H_2O
16. 1.67 M/L
17. 0.29
18. 0.75 %
19. 157.5 g
20. None of the above.

Test 4

1. Ethylene glycol
2. Acetone
3. 0.023 mol/kg
4. 0.25
5. Their composition varies on changing pressure and temperature.
6. 20 w/w %
7. Zeotropic mixtures.
8. Hydrates
9. 242
10. I

$$\text{Molality} = \frac{1.8/180}{100} \times 1000 = 0.1$$

$$\Delta T_b = K_b m$$

$$K_b = AT_b/m = 0.1/0.1$$

11. $= 1$ K/m
12. Molar masses
13. $K_{sp} = [Ag^{+1}][Cl^{-1}]$
14. Zeotropic mixtures.
15. Beckmann's apparatus.
16. Ethanol and water
17. Positive ions are more easily hydrated.
18. Directly proportional to the molality of the solution.
19. Decreases
20. Molality

Electrochemistry

Test 1

Test 2

1. Na^+ and Cl^- ions
2. Hydrogen gas
3. Both a and b
4. I^{-1}
5. All of the above
6. F_2O
7. $2Na+Cl_2$ ------> $2NaCl$
8. Spontaneous
9. Cathode.
10. Allow movement of ions between two cells
11. 0 V
12. $Cu + Zn^{+2}$ ---------> $Cu^{2+} + Zn$
13. Both A and C
14. H_2-O_2 cell
15. Lead is deposited at cathode.
16. Anode
17. Drops to zero.
18. Sn electrode
19. $H_2SO_4 + H_2O$ -----------> $H_3O^+ + HSO_4^-$
20. Voltaic and galvanic cell

Test 3

1. External circuit is employed to supply the source of electricity
2. SO_3
3. 1.25gcm^{-3}
4. The reaction will be feasible
5. Oxidation reduction reaction
6. 0
7. Greater negative value of standard reduction potential
8. Li
9. +2
10. +2
11. Both a and b
12. Its oxidation potential and reduction potential both are zero
13. +4
14. -1
15. Zn
16. Electrode potential
17. Positive reduction potential
18. Alkaline battery
19. Can liberate H_2 from dil. Acid
20. Positive Reduction potential

Test 4

1. Oxidation state
2. pH = pK_a - log [Acid/Base]
3. Aluminum metal
4. MnO_4^------> Mn^{+2}
5. May be sum of or difference of two electrode potentials
6. Gain electrons.
7. Copper metal
8. Na^+
9. Fe is cathode
10. Reduction potential
11. Electrodes
12. Double the number of OH^- ions
13. Solution of 1 molar strength at 298K compared to S.H.E.
14. Electrolytic cell
15. -1
16. Fe is oxidized.
17. Greater is tendency to accept electrons.
18. Can undergo reduction easily
19. +2.87 V
20. +6

Reaction Kinetic

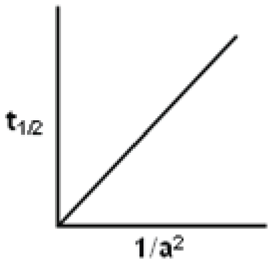
Test 1

1. Average rate of reaction.
2. Increases with an increase in the concentration of the reactants
3. i and ii are first order reactions
4. Both A and B
5. Refractrometric method.
6. Reaction kinetics
7. The rate of reaction is independent of the concentration of y.
8. Concentration of the reactants.
9. Catalyst poisoning.
10. mol lit^{-1} sec^{-1}
11. A has higher rate of reaction.
12. moles dm^{-3} s^{-1}
13. Change in the concentration of the substance / Time taken for the change
14. *Concentration of reactants decreases.*
15. Step 1
16. 6×10^{-5} $moldm^{-3}sec^{-1}$
17. Rate of reaction increases.
18. Increase the rate of reaction..
19. A is the Arrhenius constant
20. Substrate

Test 2

1. Inversely proportional to the square of the initial concentration of the reactants.
2. Concentration of reactants
3. Lower the activation energy
4. Auto catalyst
5. R = k.
6. $1/a^{n-1}$
7. Increases nine times
8. Pressure
9. Instantaneous rate of reaction is never equal to the average rate of reaction.
10. They start the chemical reactions which otherwise are thermodynamically not feasible
11. Light increases the rate of reaction by providing additional energy.
12. $6.932 \times 10^{-2} min^{-1}$
13. Reaction rate is doubled.
14. Powdered form increases the surface area of reaction.
15. 670-770 K (400°C- 500°C)
16. Method of large excess.
17. increase by a factor of 4.
18. Dilatometric method.
19. 3×10^{-7} ms^{-1}
20. Order of the reaction

Test 3

1. 19 KJ
2. R = k [N_2O_5]
3. 2
4. i, ii and iii.
5. dx/dt
6. C
7. $Ae^{-Ea/RT}$
8. Reaction between methane and chlorine.
9. 1
10. [$t_{1/2}$] = 1/ka
11. First order reaction.
12. $2^{(n-m)}$
13. 

14. B gives the instantaneous while A gives the average rate of reaction.
15. A
16. 250 s
17. log k vs 1/T
18. The products are at a lower energy level than the reactants.
19. 33.6 $L^2\ mol^{-2}\ s^{-1}$
20. The value of first order rate constant depends on the units of the concentration terms used.

Test 4

1. Energy of activation
2. -d[A]/dt = d[B]/dt
3. Pseudo first order reaction
4. 0
5. Second
6. 347
7. k $[A]^a\,[B]^b$
8. A
9. 37.5 s
10. aA + bB ----> cC + dD with R = k [A]
11. Neutralization
12. Fe + $CuSO_4$ ------------> $FeSO_4$ +Cu
13. log K
14. Liquid
15. Chemical method.
16. Dilatometric method
17. Fe_2O_3 is catalyst while Al_2O_3 and K_2O are promoters
18. Both A and B.
19. 0.00625 mol/dm^3
20. Rate of reaction decreases with time.

Elements & Periodicity

Test 1

1. Polymeric
2. 2
3. Electron affinity
4. Metalloids
5. Fluorine
6. s block elements
7. Inert gases
8. Ionic
9. 18
10. 7
11. Added electrons are accommodated in new electron shells
12. Group II A
13. H
14. Halogens
15. Atomic mass
16. Alkali metals
17. Oxidation state
18. Atomic mass
19. The properties of every 8^{th} element from the given one is similar to the first
20. Number of shells (orbits)

Test 2

1. 118
2. Decreases from the top to bottom
3. Electropositive
4. Group IA, IVA or VIIA.
5. i, ii and iii.
6. Alpha, Cancer
7. Increases
8. Alkali metals
9. ii and iii only
10.
    - and S
11. d block
12. Li>Be
13. Increase
14. Alkali metals
15. Less the metallic character.
16. ??????
17. 4
18. No. of electrons gained or lost
19. 15
20. Number of electrons in the outermost shell

Test 3

1. First ionization energy.
2. They do not conduct electricity in any form.
3. Oxygen
4. BeO
5. F
6. i, ii and iii
7. Melting points
8. f block
9. Group VI A and VII A oxides are acidic in nature.
10. Negative ion is smaller in size as compared to the parent atom.
11. Mn_2O_7
12. Melting and boiling points first increase then decrease
13. Na_2O_3
14. Atomic radius
15. Elements within same group.
16. Si^{+4}
17. I
18. Metallic character increase down the group.

Test 4

1. $B<C<N<Ne$
2. S
3. 95 pm
4. Valence orbital
5. 32
6. Energy is generally released when first the electron is absorbed by an element.
7. Cl
8. $^{11}X_{23}$
9. B
10. Increases
11. Increase in number of protons in nucleus
12. N and C
13. Both A and B

Group I to VI Elements

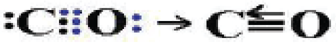
Test 1

1. Alkaline.
2. Alkali metals
3. D-block
4. $1s^2 2s^2 2p^6 3s^2 3p^1$
5. $Be(OH)_2$
6. Acidity
7. Oxygen
8. Their oxides and hydroxides are alkaline in nature.
9. Alkaline
10. Gypsum
11. NO_2
12. Na_2CO_3
13. Radium
14. Cement
15. Slaked lime, sand and water
16. V_2O_5
17. $NO_2 + O_2$
18. Na_2O_2
19. CO
20. Sodium metals

Test 2

1. sodium silicate
2. Single electron in the outermost orbit.
3. H_2 gas evolved in the reaction is combustible in nature.
4. CO_2
5. Alkali metals.
6. Chalogens
7. BeO
8. Diamond is the hardest and graphite is the softest.
9. Representative elements
10. Gypsum
11. Li_2CO_3
12. It is a non-metal.
13. C
14. Ba
15. Auric chloride.
16. NO_2
17. Iron catalyst with metal oxide promoters
18. NO_2
19. High dissociation energy.
20. Electrophile

Test 3

1. P_4
2. Cu
3. HPO_3
4. Lower melting point.
5. Dilute alkali hydroxide.
6. H_3PO_3
7. All the valence electrons of each C-atom are involved in the bonding.
8. K
9. KCl
10. All except A.
11. CO
12. HPO_3
13. Li
14. 
15. Na_2CO_3
16. Increases down the group
17. Starch
18. $MgCO_3$
19. Boric anhydride.
20. The ns^2 electrons remain inert and do not take part in bonding.

Test 4

1. $Ca_3(PO_4)_2$
2. ns^2np^4
3. Less basic hydroxides.
4. $M(OH)_2 \text{---}> MO + H_2O_{(G)}$
5. Cl_2
6. $H_3PO_3 + HCl$
7. Carnallite
8. Epsom salt
9. Alkali
10. Air
11. Ionization energy of alkaline earths is greater than alkali metals.
12. Dehydration
13. Graphite.
14. $Be(OH)_2$
15. ns^2np^2
16. Acidic
17. $Ca_2B_6O_{11}.5H_2O$
18. Pb_3O_4
19. $Na_2CO_3.H_2O$
20. LiOH

Halogens & Nobel Gases

Test 1

1. HF
2. $HClO_4$
3. All of the above.
4. They have completely paired up and stable electron shells.
5. HI
6. Iodine
7. Teflon
8. AgBr
9. Xe
10. Moisture
11. ns^2np^5
12. $CaOCl_2$
13. $HF<HCl<HBr<HI$
14. $F_2>Cl_2>Br_2>I_2$
15. Both A and B.
16. I_2
17. $(C_2F_4)_n$
18. Cl_2
19. I_2
20. Rn

Test 2

1. Rn
2. Excess of dilute acid on the bleaching powder.
3. Cl_2O_7
4. The strongest oxidizing halogen is iodine.
5. $HF<HCl<HBr<HI$
6. It reacts with silica of the glass
7. Ar
8. HF
9. Cl_2
10. HFO
11. Goiter
12. Gain electrons less readily.
13. Helium
14. A greenish yellow gas
15. HF
16. HI
17. Beckmann's method
18. Monoatomic
19. Tetrahedral
20. s^2p^6

Test 3

1. Xe
2. Linear
3. KI
4. Higher electro negativity.
5. HF
6. ClO_2
7. Reddish
8. Highly soluble in water.
9. $HXO < HXO_2 < HXO_3 < HXO_4$
10. Cl_2
11. Perchloric acid
12. F
13. The forces existing between the discrete molecules are only weak Van der Waal's forces.
14. Xe
15. Oxides of bromine
16. $HClO_4$
17. Dipole moment.
18. HF
19. HClO
20. Perchloric acid

Test 4

1. Cl_2
2. AgF
3. NaClO
4. Chlorine
5. I_2 is a volatile solid.
6. At
7. d-orbitals
8. HF
9. F_2
10. Violet
11. F_2
12. All of the above.
13. $HClO_4$
14. Oxidizing agent
15. Fluorides
16. As a reducing agent.
17. All of the above.
18. Lower ionization potential.
19. Bromine
20. In flourescent tubes.

Transition Elements

Test 1

1. Cast iron.
2. Paramagnetism.
3. $4s<4p<4d<4f$
4. Both of the above.
5. Coordination number.
6. i, ii and iii.
7. Colour
8. Fourth period
9. All of the above
10. Transition elements
11. II-B and III-B
12. Wrought iron
13. NH_3
14. Steel.
15. Inner transition elements
16. 48mins
17. One
18. II-B
19. Outer transition elements

Test 2

1. Its d-subshell is complete.
2. 7^{th}
3. Yellow
4. Chelates are more stable than ordinary complexes
5. Binding energy
6. Mn^{2+}
7. $[Fe(H_2O)_6]^{+2}$
8. Producers gas.
9. +3
10. +7,+6,+4,+2
11. This gives stability to d-orbitals.
12. II-B and III-B
13. Cu and Cr
14. W
15. Both a and b
16. +6
17. Co
18. Fe belongs to 3d series.
19. Strong
20. All of the above.

Test 3

1. CaO
2. Iron
3. All of the above.
4. Cu and Cr
5. dsp^2
6. $KMnO_4$
7. Zn
8. All of the above.
9. Zn
10. Its co-ordination number changes.
11. 5
12. W
13. They make complexes.
14. Oxidizing agent.
15. Cr,Mo,W
16. +6
17. Graphite
18. $Fe(CO)_5$
19. $3d^5 4s^1$
20. [Xe] $4f^{14}$,$5d^{10}$,$6s^1$

Test 4

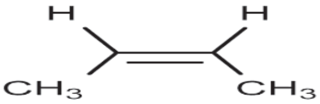
1. Yellow
2. Diamagnetism
3. Zn
4. Fourth period
5. Dark purple lustrous crystal.
6. All of the above.
7. Red and Blue
8. Wrought iron
9. $Cr_2O_7^{-2}$
10. Oxidizing agent.
11. Cast iron>Steel>Wrought iron
12. Fe
13. Zinc
14. Cl^- ions
15. Number of unpaired electrons.
16. Paramagnetism.
17. Cr and Cu
18. 5^{th}
19. 6^{th}
20. 6^{th}

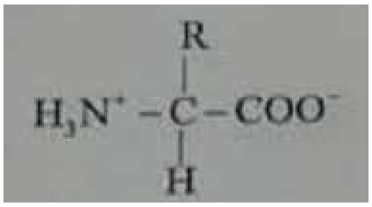
Basic Organic Chemistry

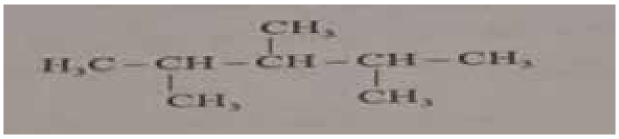
Test 1

1. Catenation
2. $CCl_3COOH > CHCl_2COOH > CH_2ClCOOH > CH_3COOH$
3. sp^3
4. Cracking
5. Geometric Isomerism
6. $C_3H_7NO_2$
7. Molecular formula
8. Friedrick Wohler
9. Metamerism
10. Reforming
11. 2
12. Octane number
13. Methane
14. $PB(C_2H_5)_4$
15. Very slow
16. Both B and C.
17. Sp
18. Cracking
19. All of the above.
20. Unequal distribution of carbon atoms on either side of functional group.

Test 2

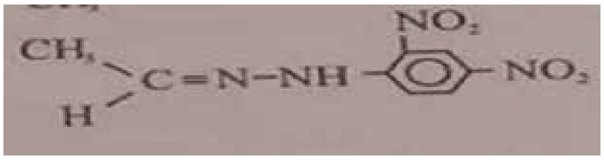
1. Tetrahedral
2. Increase in carbon atoms.
3. Catenation
4. Tetrahedron
5. Hybridization occurs between the s-orbitals and two p-orbitals
6. They readily dissolve in water.
7. 

8. Positional isomerism
9. Dimethyl ether
10. 2-bromo-2chloro-1,1,1-trifloroEthane,
11. 

12. 100
13. Chain isomerism
14. Temperature ranging from 500-1000°C
15. Functional group isomerism
16. Cis-trans isomers.
17. 1-chloro-2-methylpropane
18. Anti-freezing agent
19. 

20. sp^2

Test 3

1. 2, 2, 4 – trimethyl pentane in a mixture
2. Ethyne
3. Mixture of silica and alumina.
4. 2
5. Plaster of Paris
6. Catalytic cracking
7. One sigma and two pi bonds.
8. Aldehyde
9. One sigma and one pi bond
10. 
11. sp^2
12. C_4H_{10}
13. Kerosene
14. C_nH_{2n}
15. Steam cracking
16. Gly-Ala (dipeptide)
17. 100% opposite from the configuration of reactant
18. One sigma and one pi bond.
19. Position isomerism
20. 90^o to the triangle.

Test 4

1. CH_3-CH_2-OH
2. Tautomerism
3. $LiAlH_4$
4. H_3C-CH_2-COOH
5. A
6. sp hybridization
7. Homologous series
8. Wood
9. Wholer
10. 3 carbon atoms.
11. $C_5H_9NO_4$
12. CH_4
13. Functional groups
14. Isomer
15. Cis-trans isomerism
16. Pyridine
17. Lysine
18. 109.5^o
19. Aromatic compounds
20. Metamerism

<u>Hydrocarbons</u>

Test 1

1. Resonance
2. Aromatization
3. Cl^{o}
4. Friedal-Craft's reaction
5. Alkenes
6. 6 π electrons
7. Alkenes
8. Coal tar
9. Carbanion
10. Elimination reaction
11. Quinoline
12. Plane hexagonal
13. Benzene
14. Aromatization
15. C_nH_{2n+2}
16. Six sp^2 hybrid carbons
17. NO_2^+
18. Ethene

Test 2

1. Alkene
2. Two alkyl groups
3. Delocalized π-electrons charge
4. Sodium or potassium salt of monocarboxylic acid.
5. $F_2>Cl_2>Br_2>I_2$
6. Clemmensen's reaction
7. Methane
8. Benzene
9. Both o- and p- positions
10. Nucleophile
11. Benzene
12. Ethyne
13. An alcoholic base
14. Napthalene
15. **R-Cl**
16. Less reactive towards electrophiles
17. Both a and c
18. All of the above
19. Nitration
20. Activating groups

Test 3

1. All of the above
2. All of the above.
3. 2-Pentyne
4. Free radical substitution
5. Both A and B.
6. Nitrobenzene
7. They have high percentage of carbon
8. SO_3
9. Methyl nitrile
10. $C_6H_2(NO_2)_3CH_3$
11. Clemmensen's reduction
12. Acetone
13. 100atm,400°C and 0.1% O_2
14. 62.9 °C
15. Polyhydric alcohols
16. Pd + $BaSO_4$
17. CH = CH
18. All of the above
19. $CH_3CH=CH_2$
20. Ozonolysis

Test 4

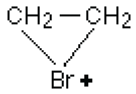
1. Picric acid
2. 1% alkaline $KMnO_4$
3. Both b and c
4. 1
5. Chloroprene
6. o- and p-chlorotoulene
7. Lower
8. C_nH_{2n}
9. n-Hexane
10. Ethyne
11. Water in the presence of sulphuric acid and mercuric sulphate
12. Ethene
13. $AlCl_3$
14. Carbon monoxide, carbon and water
15. Alkaline $KMnO_4$
16. Ethanol
17. Alkaline $KMnO_4$
18. Alkenes
19. Mixture of a, b and c
20. C_6H_6

Alkyl Halides

Test 1

1. Monohaloalkanes
2. H_3PO_3
3. To Provide enough room to attack Nu
4. $ZnCl_2$
5. Three
6. OH^-
7. Secondary alkyl halides
8. Two carbon atoms
9. Extent of bond breakage = Extent of bond formation
10. Less reactive, strongest
11. Two
12. All of the above.
13. Both b and c
14. Two molecules take part in the rate determining step
15. Attacks from the side opposite to the leaving group
16. Both b and c.
17. First step
18. Quaternary ethyl ammonium
19. One
20. Second order kinetics

Test 2

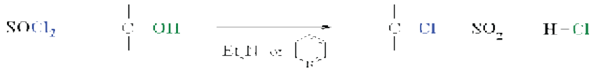
1. Resonance
2. HI> HBr > HCl
3. C_2H_5Cl, $POCl_3$ and HCl
4. Electronegativity
5. Alkane
6. $CH_3 > C_2H_5X > C_3H_7X$
7. Elimination
8. Independent of direction
9. A or B both can be used
10. RF
11. Both a and b
12. Both a and b
13. 2
14. Two step unimolecular
15. The concentration of substrate
16. 

17. Alkenes
18. From sp^3 to sp^2
19. Both S_N1 and S_N2
20. Tertiary alkyl halide

Test 3

1. I^-
2. Air pollution
3. R-F
4. Both a and c
5. HI > HBr > HCl
6. Attack of incoming nucleophile on beta hydrogen
7. Liberates I_2
8. Alkenes
9. All of them.
10. 1-Chloro-4-methylhexane
11. Reagent for II is elimination
12. Kolbe's reaction
13. All of the above
14. S_N1 and E1
15. Both a and b
16. CH_3COCH_3
17. Primary > Secondary > Tertiary
18. Acid
19. E1 and S_N1
20. Rate=k[Alkyl halide][Nucleophile]

Test 4

1. R-I > R-Br > R-Cl > R-F
2. They have an electrophile carbon and a good leaving group.
3. All
4. Highly polar
5. Substrate
6. Two
7. 2-Bromo-3-methylbutane
8. Alkane
9. E2 and S_N2 reactions
10. It is used as solvent in the reaction.
11. Tetraethyl lead
12. Planar
13. Formaldehyde
14. Wurtz synthesis
15. R-I
16. Concentration of alkyl halide
17. CH_3CH_2-NH_2
18. 

19. All of the above
20. Dilute $NaOH_{(aq)}$, Warm

Alcohols, Phenols & Ethers

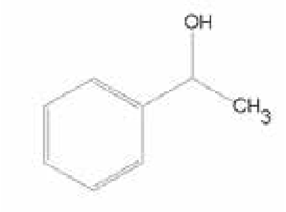
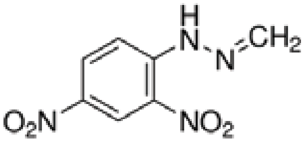
Test 1

1. Ethanol
2. Invertase
3. Oxidation
4. All of the above.
5. All of the above.
6. Hydrogen bonding with each other.
7. Tertiary alcohols
8. One
9. Phenol
10. Two
11. Upto 12%
12. ROH
13. Ethanol
14. CHI_3
15. $ZnCl_2$ as catalyst plus heat
16. Methnol
17. Coal tar
18. Alcohols, phenols and ethers.
19. $CHI_3 + HCOONa + 5NaI + 5H_2O$
20. Preservative for specimen

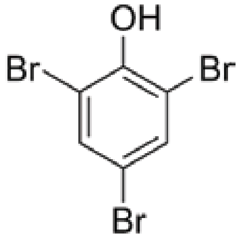
Test 2

1. Both "a" and "b"
2. Williamson's reaction
3. Base
4. Lucas Test
5. C-O bond breaks.
6. Benzene
7. Both B and C
8. Ester
9. Propanone
10. 4 molecules
11. Both b and c
12. Hydration of alkenes
13. Cyclohexanol
14. Ketones
15. Diastase
16. B
17. Coloured
18. Alcohols
19. 2-Butanol
20. $CH_3CH_2CH_2OH$

Test 3

1. Ethylene
2. 
3. $ZnCl_2$
4. O-H bond
5. It decreases from lower to higher alcohols
6. Lactic acid
7. Ethers
8. 2,4,6 – Tribromophenol
9. Lucas test
10. It forms an oily layer in five to ten minutes.
11. They are named in such a way that (-OH) groups get lower number than the point of unsaturation.
12. None of them are polyhydric alcohols.
13. Sodium phenoxide
14. Isopropyl alcohol
15. Tertiay alcohol > Seconday alcohol > Primary alcohol
16. Tertiary alcohols
17. 
18. Addition of nitrates
19. Fructose
20. Tartaric acid

Test 4

1. It forms oily layer only on heating.
2. No ppt
3. Resonance stabilization of phenoxide ion.
4. 
5. Iodoform test
6. Tollens test
7. Diethyl ether
8. Methanol
9. -ol
10. 2-Methylpropene
11. Purification --> Compression --> Catalyst --> Condenser
12. $C_2H_5Cl + POCl_3 + HCl$
13. 200 atmospheres
14. Zymase
15. $K_2Cr_2O_7 + H_2SO_4$
16. Phenol
17. Molasses
18. 25-35 ^oC
19. B
20. Lactic acid

Aldehydes & Ketones

Test 1

1. CH_3COCH_3
2. Only at the end of carbon atoms
3. Alcohols
4. Same number of carbon atoms on either side of the carbonyl group
5. Nucleophilic addition
6. CH_3-CO-CH_2-CH_3
7. C_2H_5OH
8. Both of the above
9. 3-Pentanone
10. Acetone
11. None of the above
12. 40% solution of HCHO
13. Carbon atoms with least number of hydrogen atoms
14. One carbon atom less than parent compound
15. All of the above

Test 2

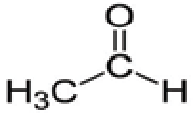
1. A
2. Cannizaro's reaction
3. 2,4-dinitrophenyl hydrazine
4. Both reduce ammonical silver nitrate to give silver
5. Same number as of the parent compound.
6. 300^{o}C
7. Both of the above
8. Both of the above
9. CH_3CH_2CHO
10. Ammonical $AgNO_3$
11. All of the above
12. Tollen's test
13. Both of the above.
14. Both of the above
15. sp^2
16. Vapours of methanol and air
17. Copper sulphate, sodium hydroxide and Rochelle salt
18. Dimethyl ketone
19. It may contain some contents of aldehydes and ketones
20. All except A.

Test 3

1. Acetals
2. Methyl ketone group,
3. n bond of C and O
4. Addition of sodium bisulphite
5.

6. Formaldehyde
7. Ketones
8. Aldols
9. Acetone

Test 4

1. $C_nH_{2n}O$
2. Ethylene
3. Alkanals
4. Benzaldehyde
5. Cannizaro's reaction
6. Alkali
7. Calcium salts of formic acid and acetic acid
8. Markownkov's rule
9. Pt-Asbestos
10. Formaldehyde
11. Both of the above
12. 
13. All except B
14. All of the above
15. Two
16. Ammonia
17. hydroxy-carboxylic acids
18.

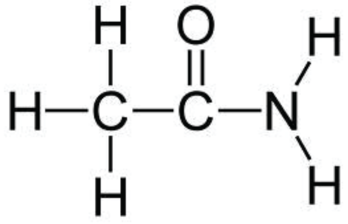
19. CH_3-CHOH-CH_2-CHO
20. Aldehydes

Carboxylic & Amino Acids

Test 1

1. First three
2. Vinegar
3. Fruity
4. Cl^-
5. *Alkanoic acids*
6. Palmitic acid
7. Essential
8. Oxalic acid
9. Phthalic acid
10. Polypeptide
11. Phthalic acid
12. Pineapple
13. lactic acid
14. Acetic acid
15. Acetic acid
16. Ninhydrin Test
17. Higher
18. Amino acids
19. Colourless
20. -CN linkage

Test 2

1. Hydrogen bonding
2. Strecker synthesis
3.  **$+H_2O$**
4. Malonic acid
5. CH_3-MgBr
6. Protein
7. Acetamide
8. By the distillation of calcium acetate.
9. Nitriles
10. Non essential amino acids
11. Amino acid
12. All of the above
13. $H_2N\text{-}CH_2\text{-}COO^-$
14. Ninhydrin
15. First CO_2 then adding HCl in the addition product.
16. Ammonium salts
17. Decreases
18. Peptides
19. Acetic acid
20. P_2O_5

Test 3

1. Basic character
2. Both (A) and (B)
3. Strecker synthesis.
4. Ethanol
5. C
6. 4
7. Carboxylic acids are formed.
8. Amino group
9. A
10. Bluish-Violet
11. Alkaline $KMnO_4$
12. Alanine
13. Paper- Chromatography.
14. Acid amides
15. Alcohols
16. Glycyl alanine
17. X = Alcohol, Y= Acetic acid, Z = Ester
18. Proton goes from Carboxyl group to amino group.
19. It undergoes all above type of reactions.
20. -OH group

Test 4

1. Glutamic acid
2. -OH
3. Orange
4. Nucleophilic substitution reaction
5. Sweet taste
6. C and N
7. Alkanes
8. Acetic acid
9. Neutral
10. γ-Amino acid
11. Esters
12. Alcoholic Potassium cyanide
13. Fats and oils
14. Polyamide
15. α-Amino acid
16. Proline
17. R-group
18. Dicarboxylic
19. 100.052ºC
20. Cation

Macro- Molecules

Test 1

1. 3
2. Monomers
3. 2
4. Ergosterol
5. Hydrogen
6. Transport protein
7. Albumin
8. Active site
9. Thermosetting polymer
10. Milk sugar
11. 2
12. $C_{18}H_{32}O_{16}$
13. Tendon
14. Carbohydrates
15. Lipids
16. Propane 1 , 2, 3 triol
17. Homopolymer
18. Rancidity
19. Fructose
20. Both are disaccharides

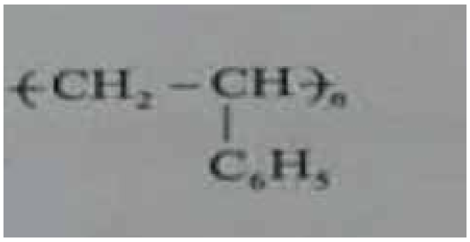
Test 2

1. Monomers
2. Hexane-1,6 diamine
3. They catalyse in both directions
4. Addition polymer
5. Phospholipids
6. Lipases
7. Six
8. 6
9. Heart attack
10. 80-90%
11. $37^{o}C$
12. They are inactivated
13. Five
14. Inorganic
15. α - D Glucose
16. Vinyl acetate
17. It improves the flexibility
18. Glycogen
19. Irradiated with U.V rays
20. Condensation polymer

Test 3

1. Both glycosidic linkages
2. Isomerases
3. Saponification
4. Alkaline phosphatase
5. 6-Phosphate derivative
6. Link two molecules together.
7. RNA
8. Thymine
9. Menadoine
10. Trisaccharide
11. It decomposes
12. Miligram
13. LDH-1
14. Directly proportional to the square root of enzymes
15. 1800
16. Guanine
17. Cyclic structure
18. 63000
19. 4
20. Steroid hormones

Test 4

1. 
2. M.M of repeating unit and DP
3. 1
4. Acid number
5. 17
6. 10^{20}
7. Emulsion paints
8. Proteins
9. Lactose
10. Addition polymer
11. Glycosidic linkage
12. α- D-glucose
13. Glycogen
14. Addition polymerization
15. They can be hydrolyzed
16. Purines
17. Hexoses
18. It is formed by addition polymerization
19. Proteins
20. 807